

Remarks

Claims 1-48 are pending in this application. Applicants have cancelled claims 1-19, 38, 45 and 46 without prejudice.

Summary of the Office Action

The Examiner required restriction of the application to either the invention of Group 1 (claims 1-19, 38, 45, and 46) or Group II (claims 20-37, 39-44, 47, and 48), and has withdrawn the claims of Groups I from consideration in view of applicants' March 18, 2003 telephonic provisional election. The Examiner further requires affirmation of the telephonic election.

The specification was objected to for having several informalities. The Examiner requires the appropriate corrections.

Claim 20 was objected to for including an informality. The Examiner requires the appropriate correction.

Claim 20 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 20-37, 39-44, 47, and 48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Singh

GB 2238802 (hereinafter "Singh") in view of Edwards et al. WO 98/42909 (hereinafter "Edwards").

Applicants' Amendments to the Specification

Applicants have proposed amending paragraphs 18, 19, and 20 of the specification to correct typographical errors pertaining to the description of the figures. No new matter would be added by the proposed amendments to the specification.

Accordingly, applicants respectfully request approval of the amendments to specification.

Applicants' Amendments of the Drawings

Applicants have proposed amendments to FIGS. 2A, 3, and 5 to fix typographical errors. No new matter would be added by the proposed amendments to the drawings, and the proposed amendments are supported and justified by the specification.

Accordingly, applicants respectfully request approval of the amendments to FIGS. 2A, 3, and 5.

Submission of Formal Drawings

In anticipation of the approval of the aforementioned drawing amendments, applicants herewith furnish six (6) sheets of formal drawings (replacement sheets 1-6), incorporating the aforementioned amendments,

to be substituted for the six (6) sheets of informal drawings filed with the application.

Affirmation of Telephonic Election
and Cancellation of Non-Elected Claims

The Examiner required restriction of the application to either the invention of Group 1 (claims 1-19, 38, 45, and 46) or Group II (claims 20-37, 39-44, 47, and 48), and has withdrawn the claims of Group II from consideration in view of applicants' March 18, 2003 telephonic provisional election. Applicants hereby affirm the election of Group II (i.e., claims 20-37, 39-44, 47, and 48) without traverse. Applicants have cancelled the non-elected claims of Groups I (i.e., claims 1-19, 38, 45, and 46) without prejudice and reserve the right to pursue the subject-matter of the non-elected claims in one or more subsequent continuing applications that claim priority and benefit from this application.

Applicants' Reply to the
Objection to the Specification

The Examiner objected to the specification for having informalities. In particular, the Examiner objects to the paragraph description of FIGS. 1 and 2, and states that the descriptions should be two separate paragraphs. Applicants have amended the specification

such that the descriptions corresponding to FIGS. 1 and 2 are separate.

Accordingly, applicants respectfully request that the objection to the specification be withdrawn.

Applicants' Reply to the Claim Objection

The Examiner objected to claim 20 for having an informality. In particular, the Examiner objected to claim 20 because the word "woven" did not precede the word "material" in one instance. Applicants have amended claim 20 accordingly.

Therefore, applicants respectfully request that the objection to claim 20 be withdrawn.

Applicants' Reply to the
Rejection under 35 U.S.C. § 112

The Examiner rejected claim 20 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. The Examiner contends that step c is vague and indefinite because the relationship between the first face and second face is unclear. Applicants respectfully submit that there is no ambiguity or indefiniteness associated with the relationship concerning the first face and the second face of the woven material. Claim 20 recites that a pressure drop is maintained across the

woven material from the first face (e.g., one side of the material) to a second face of the woven material (e.g., the other side of the material).

Accordingly, applicants respectfully request that the § 112 rejection be withdrawn.

Applicants' Reply to the
Rejection under 35 U.S.C. § 103(a)

Claims 20-37, 39-44, 47, and 48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Singh in view of Edwards. Applicants respectfully traverse this rejection.

Applicants' invention uses an air dispersion process to incorporate particulate solids into a woven material. Applicants' claim 20 defines a process for producing such a woven material with a particulate solid incorporated therein. The process includes entraining a particulate solid in a gaseous carrier and disposing a first face of a woven material in the path of a stream of the gaseous carrier and entrained particulate solid. A pressure drop is maintained across the woven material from a first face to a second face of the woven material, thereby to incorporate at least some of the entrained particulate solid in the gaseous carrier into the woven material. Claim 20 further specifies fixing the incorporated particulate solid.

Singh refers to an air dispersion process for incorporating solid particles into non-woven materials or open cell foam materials.

Edwards refers to an ultraviolet (UV) blocking fabric that has particles incorporated therein to provide protection against UV rays. Edwards refers to several different processes for incorporating particles into woven and non-woven materials, none of which show or suggest use of an air dispersion process. In fact, Edwards uses processes that maximize retention of UV blocking particles in the woven and non-woven materials. It does not matter how the UV blocking particles are bound to the material because the mere presence of the particles block UV rays. Moreover, the processes of Edwards may completely or partially encapsulate the particles with a binder as the particles are being incorporated into the woven or non-woven material. Therefore, because non-air dispersion processes are used, this provides Edwards more latitude and freedom as compared to an air dispersion process to incorporate solid particles into both woven and non-woven materials.

Furthermore, the processes of Edwards fail to take into account the activity of the particles being incorporated into the material. Certain particles can possess certain characteristics (e.g., odor adsorption) when in an active state. But when these particles are

deactivated, those characteristics are diminished or eliminated. Persons skilled in the art will appreciate that each of the processes used by Edwards would result in deactivation of the active particles. This deliberate failure to address deactivation of particles is another reason why the non-air dispersion processes of Edwards are able to incorporate particles into both woven and non-woven materials.

The Examiner contends that "while Singh deals with air-permeable non-woven not generally having a perfectly uniform distribution of voids, in view of the teachings and equivalence of woven and non-woven fabrics of Edwards, it is the Examiner's position that one of ordinary skill in the art would have recognized that since both fabrics have open, permeable structures amenable to the deposition of particles, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the method of Singh for application of particles by fluids into woven as well as non-woven fabric as recognized by Edwards because of the expectation of successfully applying such particles with the spaces between the fibers of the thickness profile of the porous, woven fabric" (Office Action, pages 7 and 8).

Applicants respectfully disagree with the Examiner's conclusion of obviousness. Applicants submit

that non-woven and woven materials are in fact different, not equivalent. Applicants also submit that even though Edwards teaches that particles can be retained in woven and non-woven materials, there is no showing or suggestion in Edwards nor Singh that an air dispersion process can be used to successfully incorporate solid particles into a woven material. In addition, there is no showing or suggestion that the processes of Edwards can be used to incorporate solid particles into woven materials without deactivating the particles.

Woven and Non-Woven Materials are Not Equivalent

The Examiner contends that woven and non-woven materials are equivalent in view of Edwards because they both have interstitial spaces available for particle deposition. Applicants respectfully disagree. Woven and non-woven materials are different in many ways. One difference is apparent in characteristics of the materials as applied to clothing or other articles. As specified in applicants' specification, "woven materials have advantageous wearability, comfort, and style characteristics in comparison to non-woven materials" (page 2, lines 12-16). In addition, woven materials typically stretch and breath better than non-woven materials (applicants' specification, page 2, lines 16-18). Moreover, a person skilled in the art will

appreciate that a woven material, such as a fabric, is different from a non-woven material, such as foam or filter paper.

Not only are the characteristics of wovens and non-wovens different, the actual composition and construction of the materials is different. As known in the art, woven materials refer to any material held together mechanically by looping the constituent yarns around each other in a non-random manner. The regular weaving pattern of woven materials results in a uniform distribution of gaps and gap size, which can be classified as two dimensional. A non-woven material, as defined by the Encyclopedia of Textiles Third Edition of American Fabrics and Fashions magazine (1980), "refers to a category of materials made primarily of textile fibers which are not processed on conventional spindles, looms, or knitting machines, but rather held together by bonding, fusing, or other chemical, thermal, or mechanical means." The fusing of fibers results in a random distribution of pores and pore size, which can be classified as three-dimensional.

Even though both woven and non-woven materials have interstitial spaces, the spaces are not equivalent, as discussed above. In fact, the structural differences in spaces affect how a woven or non-woven material retain particles. Moreover, it is known in the art that a

material having a random distribution of pores and pore size can retain particles much easier than a material having a uniform distribution of gaps.

Accordingly, for at least the reason that non-woven and woven materials are not equivalent, the rejection of claims 20-37, 39-44, 47, and 48 should be withdrawn.

The Process and the Type of Material Treated by
the Process Affect How Particles are Retained

The process by which particles are incorporated into a woven or non-woven material and the structural configuration of the material has a significant impact on the material's capacity to retain particles. Thus, depending on the method used, a woven material may or may not be able to retain particles. As discussed above, it is known to those of skill in the art that non-woven materials retain particles much more readily than their woven counterpart. Thus, non-woven materials may be able to retain particles, regardless of the process used to treat the material. On the other hand, when a woven material is treated by a process, the material may not retain the particles.

Certain processes, such as a liquid dispersion process (as disclosed by Edwards), can be used to successfully incorporate particles into both woven and non-woven materials. However, when an air dispersion

process is used, woven materials are unable to easily retain the particles. This is evidenced by Edwards, which fails to show or suggest using an air dispersion process, and Singh, which specifically discloses that only non-woven fibrous materials and open cell foam materials are used in the air dispersion process (Singh, page 8, lines 13-15). Thus, prior to applicants' invention, use of an air dispersion method to incorporate particles into a woven material was not taught and simply did not work. Applicants have solved the problem of incorporating particles into a woven material by using the air dispersion process, as evidenced by the examples in applicants' specification.

There is No Motivation to Utilize Singh
with Woven Materials in View of Edwards

Applicants respectfully submit that the Examiner has not pointed to an objective teaching in Singh nor Edwards nor to knowledge generally available to one of ordinary skill in the art, that would lead that individual to utilize Singh with woven materials.

Instead of providing an objective teaching of a motivation to utilize the process of Singh with a woven material, the Examiner concludes that it would have been obvious to utilize the process of Singh for woven fabrics in view of the teaching of Edwards that woven and non-woven fabrics have voids that can contain particles

(Office Action, page 9). This does not point to any objective teaching that would lead one of ordinary skill in the art to utilize the process of Singh in combination with woven materials to obtain applicants' invention, especially in light of the fact that Edwards fails to teach that an air dispersion process can be successfully used to apply particles to a woven and that Singh only operates on non-woven and open cell materials.

Simply pointing to a teaching that discloses that woven and non-woven materials can retain particles is not in and of itself motivation. Here the Examiner is stating that because both woven and non-woven materials can retain particles, it would be obvious to utilize Singh in combination with woven materials in light of the Edwards. This is not motivation because it is premised without regard to the process being used to incorporate the particles. When considering the prior art references as a whole, that is both the material and process used to treat the material, the references do not show or suggest that an air dispersion process can be applied to a woven material.

Applicants respectfully submit that the Examiner has employed hindsight reconstruction in modifying Singh in light of Edwards. With the knowledge of applicants' novel approach of using an air dispersion method to incorporate solid particles into a woven

material in mind, particular features of the prior art were identified for use in rejecting applicants' invention. This technique has long been held invalid by the courts at creating a *prima facie* case of obviousness. See In re Fine at 1600 ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.").

The Examiner has used applicants' own invention as a bridge between Singh and Edwards. In doing so, the Examiner has demonstrated mere hindsight reconstruction, the very "syndrome" that the requirement for objective evidence is designed to combat, and the rejection is therefore insufficient as a matter of law. See In re Dembiczak at 1617-1618. For this reason alone, the rejection of claims 20-37, 39-44, 47, and 48 must be withdrawn. Gambro Lundia AB v. Baxter Healthcare Corp., 42 USPQ2d 1378, 1383 (Fed. Cir. 1997).

For at least the reason that the Examiner failed to point to a suggestion or motivation for using the process of Singh to treat woven materials in view of the teachings of Edwards, applicants respectfully submit that the Examiner has failed to make a *prima facie* case of obviousness (MPEP § 2142).

There is No Reasonable Expectation of Success

Not only is there no motivation to utilize Singh for woven materials in view of Edwards, there is no reasonable expectation that such utilization would be successful. The Examiner hinges the expectation of success based on the mere fact that both woven and non-woven materials are able to retain particles. As discussed above, the capacity of a material's ability to retain particles is not the only factor that requires consideration in order to determine whether a woven material can retain particles. Consideration of both the material and the process used to treat the material is required to determine whether there is a reasonable expectation of success of using the process of Singh with woven materials in view of Edwards.

In considering the process and the material being treated by the process, the dichotomy between Singh and Edwards is apparent. Here, the process of Singh only works with non-woven and open cell materials. Edwards can incorporate particles into both woven and non-woven materials because it uses processes that specifically exclude air dispersion. Accordingly, there is no reason to expect Singh to successfully treat a woven material when Edwards uses non-air dispersion methods to treat woven materials.

For at least the reason that the prior art, when considered as a whole, shows that there is no reasonable expectation of success of utilizing the process of Singh in view of Edwards to treat woven materials, applicants respectfully submit that the *prima facie* case of obviousness has not been met (MPEP § 142).

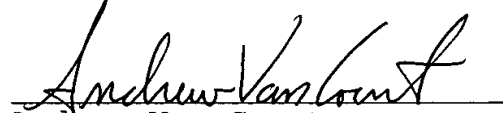
Accordingly, for at least the reasons that there is no motivation nor suggestion to utilize Singh for woven materials in view of Edwards, that there is no reasonable expectation that such a modification will be successful, and that impermissible hindsight was used to combine the references, claim 20 is allowable. Dependent claims 21-37, 39-44, 47, and 48 are also allowable because they depend from independent claim 20.

For at least the above reasons, applicants respectfully request that the rejections of claims 20-37, 39-44, 47, and 48 under 35 U.S.C. § 103(a) be withdrawn.

Conclusion

The foregoing demonstrates that claims 20-37, 39-44, 47, and 48 are allowable. Applicants respectfully submit that this patent application is in condition for allowance. Reconsideration and allowance are respectfully requested.

Respectfully Submitted,

A handwritten signature in cursive script, reading "Andrew Van Court", is written over a horizontal line.

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